

Matera CGS VLBI Analysis Center

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Abstract In this document G. Bianco as primary contact and R. Lanotte as associate member, both for the IVS Analysis Center at the Space Geodesy Center (CGS) of the Italian Space Agency (ASI), report the VLBI data analysis activities performed from January 2014 through December 2014 and the contributions that the CGS intends to provide in the future as an IVS Analysis Center.

1 General Information

The CGS VLBI Analysis Center is located at the Matera VLBI station close to the town of Matera in the middle south of Italy. The Matera VLBI station became operational at the CGS/ASI in May 1990. Since then, it has been active in the framework of the most important international programs. The CGS, operated by E-GEOS S.p.A. (an ASI/Telespazio company) under an ASI contract, provides full scientific and operational support using the main space geodetic techniques: VLBI, SLR, and GPS. The work presented in this report is carried out by the E-GEOS staff consisting of Roberto Lanotte and Simona Di Tomaso.

1. Italian Space Agency, Centro di Geodesia Spaziale

2. E-GEOS S.p.A., Centro di Geodesia Spaziale

CGS Analysis Center

IVS 2014 Annual Report

2 Activities during the Past Year

During 2014, the following activities were performed at CGS:

- Global VLBI Solution cgs2014a.
In the year 2014 we continued the annual realization of a global VLBI solution. This year's solution is named cgs2014a and was realized using the CALC/SOLVE software developed at NASA/GSFC. The main and final characteristics of the cgs2014a solution are:
 - Data span: 1984.01.04 — 2013.12.26 for a total of 4,356 sessions
 - Estimated Parameters:
 - Celestial Frame: Right ascension and declination as global parameters for 969 sources,
 - Terrestrial Frame: Coordinates and velocities for 99 stations as global parameters, and
 - Earth Orientation: X pole, Y pole, UT1, Xp rate, Yp rate, UT1 rate, dpsi, and deps.
- IVS Tropospheric Products.
Regular submission of tropospheric parameters (wet and total zenith path delays, east and north horizontal gradients) for all VLBI stations observing in the IVS R1 and R4 sessions continued during 2014. Currently, 1,390 sessions have been analyzed and submitted, covering the period from 2002 to 2014. The results are available at the IVS products ftp site.
- Daily Solution Files (DSNX).
This year we started to provide daily sinex files for the IVS project “Daily EOP + station-coordinates solutions”. At the present about 5000 sessions have been analyzed and submitted to IVS.

- CGS contribution to IVS combination for ITRF2013.
About 4,500 VLBI sessions from 1984 to the end of 2013 have been analyzed following the instructions provided by the IVS Analysis Coordinator, John Gipson. The produced sinex files have been submitted to be included in the IVS contribution to ITRF2013.
- CGS contribution to IERS EOP Operational Series. Since 2008, CGS has been delivering IERS R1 and R4 session EOP estimates as a regular contribution to the IERS EOP operational series.
- Software development.
We started the realization of the software “*resolve*”. The main goal of this software is the visual editing of a VLBI database. One of the reasons that led us to the development of this software was to have the capability of work on the output obtained from a run of SOLVE in BATCH mode. At the present we have used *resolve* to edit approximately 5% of the databases of the daily sinex production.

2.1 Staff at CGS Contributing to the IVS Analysis Center

- Dr. Giuseppe Bianco, responsible for CGS/ASI (primary scientific/technical contact).
- Dr. Rosa Pacione, responsible for scientific activities, E-GEOS.
- Dr. Roberto Lanotte, geodynamics data analyst, E-GEOS.
- Dr. Simona Di Tomaso, geodynamics data analyst, E-GEOS.

3 Future Plans

- Continue and improve the realization of our global VLBI solution, providing its regular update on time.
- Continue to participate in the IVS analysis projects.